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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/702,755	11/01/2000	Nobutaka Nakamura	04329.2454	9386

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EXAMINER

LEFKOWITZ, SUMATI

ART UNIT	PAPER NUMBER
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2189

DATE MAILED: 05/13/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/702,755

Applicant(s)

NAKAMURA, NOBUTAKA

Examiner

Sumati Lefkowitz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-19 are pending.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Using Consecutive Block IDs to Keep Track of Data Transferred Across a Serially Linked Bridge".

3. The abstract of the disclosure is objected to because
- lines 12-14 seem to inconsistent with the rest of the disclosure – according to the disclosure, a NAK causes re-transmission, not an ACK
Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 6-8, and 12-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Byers et al., 5,524,218 (hereinafter Byers).

As to claims 1-4, 6-8, and 12-19, Byers discloses a computer system in which data required to transmit a bus transaction is transmitted between first (note Figure 4A, elements 94 and 96) and second controllers (note Figure 4B, elements 164 and 166) which are connected to first (note Figure 4A, element 104) and second (note Figure 4B, element 168) buses, the computer system comprising means for transmitting a plurality of items of data from the first controller to the second controller (note column 7, line 20 – column 9, line 16) without waiting for a return of an affirmative response from the second controller, each of the transmitted items of data having consecutive identifier numbers (i.e., sequence numbers), means for returning a response (i.e., ACK) from the second controller to the first controller when the second controller correctly receives an item of data, the response having an identifier number (i.e., sequence number) corresponding to the received item of data, and means for managing whether or not the response (i.e., NAK) is returned from the second controller to the first controller for each of the transmitted items of data and re-transmitting an item of data waiting for the return of the response from the first controller to the second controller in order of the identifier numbers when a re-transmission request (i.e., NAK) is transmitted from the second controller to the first controller, wherein the second controller transmits the re-transmission request to the first controller when data cannot be received or when the identifiers of the received items of data are not consecutive (note column 11, lines 23-63 and column 19, line 1 – column 20, line 47 and column 23, lines 31-50), further comprising error recovery means for, when an error occurs during data transfer between the first and second controllers, transmitting a predetermined bit pattern between the first and second controllers, thereby reestablishing synchronization between the first and second controllers, notifying to the first controller an identifier number of an item of

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data from which transmission is to be restarted, and returning the first and second controllers to a normal operation state, and wherein the data transmitting means restarts transmission processing from the item of data having the notified identifier number (note column 11, line 64 – column 12, line 53, column 19, line 1 – column 20, line 47), wherein the first controller detects that an error has occurred during data transfer between the first and second controllers when an identifier of the returned affirmative response is not consecutive (note column 11, lines 23-63 and column 16, line 5 – column 20, line 47 and column 23, lines 31-50).

6. Claims 15-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al., 4,970,714 (hereinafter Chen).

a. As to claim 15, Chen discloses a data transmission control method for a computer system comprising the steps of transmitting a plurality of items of data without waiting for a return of a response, each of the transmitted items of data having consecutive identifier numbers, returning a response every time correctly receiving an item of data, the response having an identifier number corresponding to the received item of data, and thereby performing data transmission and the return of the response asynchronously (note column 4, line 63 – column 6, line 21, column 8, line 9 – column 12, line 25).

b. As to claims 16-17, Chen discloses a transmitting apparatus comprising means for sending a plurality of items of data having identifier numbers, means for checking the identifier numbers of the sent items of data, and means for receiving a response indicating a reception of the sent items of data, wherein the sending means sends another plurality of items of data having

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identifier numbers checked by the checking means, when the receiving means receives the response (note column 4, line 63 – column 6, line 21, column 8, line 9 – column 12, line 25).

c. As to claims 18 and 19, Chen discloses a transmitting apparatus comprising means for sending a plurality of items of data having identifier numbers and means for receiving a response indicating a non-reception of the sent items of data and an identifier number to be re-transmitted, wherein the sending means sends an item of data having the identifier number indicated by the response (note column 4, line 63 – column 6, line 21, column 8, line 9 – column 12, line 25).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Byers et al., 5,524,218 (hereinafter Byers) in view of Ahern, 6,070,214.

a. As to claims 5 and 9, Byers fails to disclose that the first controller is provided at a host device and the second controller is provided at an expansion unit for increasing a function of the host device, and the first and second controllers function as a single bridge device for connecting the first and second controllers via a serial transmission path.

Ahern discloses that a first controller is provided at a host device and a second controller

is provided at an expansion unit for increasing a function of the host device, and the first and second controllers function as a single bridge device for connecting the first and second controllers via a serial transmission path (note Figures 1 and 2 and column 12, lines 1-3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the use of a first and second controllers connected via a serial transmission path and functioning as a single bridge, as Ahern teaches, in the system of Byers so as to allow for the expansion of the computer system of Byers through the use of a fiber optic, point-to-point link between first and second bridge controllers, with the fiber optic link providing substantially higher data transfer rates and longer transmission distances compared to traditional computer buses, high noise immunity and low error rates.

b. As to claims 10 and 11, Byers discloses means for transmitting a plurality of items of data without waiting for a return of a response, each of the transmitted items of data having consecutive identifier numbers, means for returning a response every time correctly receiving an item of data (note column 19, lines 39-51), the response having an identifier number corresponding to the received item of data, and means for managing whether or not the response is returned for each of the transmitted items of data and causing the data transmitting means to repeatedly execute consecutive transmission processing in units of the plurality of items of data including an item of data waiting for the return of the response (note column 11, lines 23-63 and column 16, line 5 – column 20, line 47 and column 23, lines 31-50).

Byers fails to disclose that a computer system comprising a host device, and expansion unit for increasing a function of the host device, and a bridge device including a first controller provided at the host device and a second controller provided at the expansion unit, the first and

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second controllers functioning as a single bridge device for connecting the first and second controllers via a serial transmission path.

Ahern discloses that a first controller is provided at a host device and a second controller is provided at an expansion unit for increasing a function of the host device, and the first and second controllers function as a single bridge device for connecting the first and second controllers via a serial transmission path (note Figures 1 and 2 and column 12, lines 1-3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the use of a first and second controllers connected via a serial transmission path and functioning as a single bridge, as Ahern teaches, in the system of Byers so as to allow for the expansion of the computer system of Byers through the use of a fiber optic, point-to-point link between first and second bridge controllers, with the fiber optic link providing substantially higher data transfer rates and longer transmission distances compared to traditional computer buses, high noise immunity and low error rates.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, as the prior art teaches or suggests assigning sequence numbers to transmitted packets and determining, based on whether the sequence numbers of the packets received at a receiver are consecutive, whether or not a packet has been lost, or whether or not an error has occurred and re-transmitting the lost/erroneous packet using the sequence number of the lost/erroneous packet.

US PG-PUBS: 2003/0002502 A1 Gibson et al.

US Patents:	6,496,481	Wu et al.	6,487,689	Chuah
	6,473,425	Bellaton et al.	6,438,105	Qarni et al.
	6,411,621	Norton et al.	6,389,016	Sabaa et al.
	6,233,248	Sautter et al.	6,181,704	Drottat et al.
	6,175,560	Bhagalia et al.	5,974,028	Ramakrishnan
	5,931,916	Barker et al.	5,838,913	Lysejko et al.
	5,754,754	Dudley et al.	5,751,719	Chen et al.
	5,745,685	Kirchner et al.	5,007,051	Dolkas et al.
	4,839,891	Kobayashi et al.	4,617,657	Drynan et al.
	4,422,171	Wortley et al.		

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sumati Lefkowitz whose telephone number is 703-308-7790.

The examiner can normally be reached on Monday-Friday from 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached at 703-305-4815.

The fax phone numbers for the organization where this application or proceeding is assigned are:

703-746-7238	for After-Final communications
703-746-7239	for Official communications
703-746-7240	for Non-Official/Draft communications

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.



Sumati Lefkowitz
Primary Examiner
Art Unit 2189

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May 8, 2003